

## **CENTRAL TIRE INFLATION SYSTEM FOR DRIVE AXLE**

### **ABSTRACT OF THE DISCLOSURE**

A tire inflation system for a portal drive axle assembly includes fluid flow passages that are formed within rotating wheel shafts, which drive a pair of wheel end assemblies. The portal drive axle assembly includes a driving input that drives a pair of axle shafts. A wheel gear assembly operably couples each axle shaft to the respective wheel shaft. The wheel gear assemblies transfer the driving force from the axle shafts to the wheel shafts, which are positioned at different vertical location relative to the axle shafts. A first end of each wheel shaft is in fluid communication with a vehicle air supply and a second end of each wheel shaft is in fluid communication with a tire assembly. Seal assemblies are mounted for rotation with the wheel shaft at the first end of the wheel shafts. An air supply needle is mounted to a non-rotating axle structure and includes a base member that is in fluid communication with the air supply and a hollow needle body that extends from the base member through the seal assembly and into the fluid flow passage. Thus, air is selectively supplied to the tire assemblies in a sealed environment by traveling from the air supply, through the rotating wheel shafts, and into the tire assemblies.